

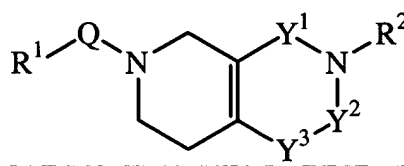
AMENDMENT TO THE CLAIMS

The following listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of claims:

Claim 1 (currently amended).

A compound of Formula I



I

or a pharmaceutically acceptable salt thereof, or a pyrido-N-oxide thereof, wherein:

R¹ is independently selected from:

- C₅ or C₆ cycloalkyl-(C₁-C₈ alkylenyl);
- Substituted C₅ or C₆ cycloalkyl-(C₁-C₈ alkylenyl);
- C₈-C₁₀ bicycloalkyl-(C₁-C₈ alkylenyl);
- Substituted C₈-C₁₀ bicycloalkyl-(C₁-C₈ alkylenyl);
- 5- or 6-membered heterocycloalkyl-(C₁-C₈ alkylenyl);
- Substituted 5- or 6-membered heterocycloalkyl-(C₁-C₈ alkylenyl);
- 8- to 10-membered heterobicycloalkyl-(C₁-C₈ alkylenyl);
- Substituted 8- to 10-membered heterobicycloalkyl-(C₁-C₈ alkylenyl);
- Phenyl-(C₁-C₈ alkylenyl);
- Substituted phenyl-(C₁-C₈ alkylenyl);
- Naphthyl-(C₁-C₈ alkylenyl);
- Substituted naphthyl-(C₁-C₈ alkylenyl);
- 5- or 6-membered heteroaryl-(C₁-C₈ alkylenyl);
- Substituted 5- or 6-membered heteroaryl-(C₁-C₈ alkylenyl);
- 8- to 10-membered heterobiaryl-(C₁-C₈ alkylenyl);
- Substituted 8- to 10-membered heterobiaryl-(C₁-C₈ alkylenyl);
- Phenyl;

Substituted phenyl;
Naphthyl;
Substituted naphthyl;
5- or 6-membered heteroaryl;
Substituted 5- or 6-membered heteroaryl;
8- to 10-membered heterobiaryl; and
Substituted 8- to 10-membered heterobiaryl;

R² is independently selected from:

H;
C₁-C₆ alkyl;
Phenyl-(C₁-C₈ alkylenyl);
Substituted phenyl-(C₁-C₈ alkylenyl);
Naphthyl-(C₁-C₈ alkylenyl);
Substituted naphthyl-(C₁-C₈ alkylenyl);
5- or 6-membered heteroaryl-(C₁-C₈ alkylenyl);
Substituted 5- or 6-membered heteroaryl-(C₁-C₈ alkylenyl);
8- to 10-membered heterobiaryl-(C₁-C₈ alkylenyl);
Substituted 8- to 10-membered heterobiaryl-(C₁-C₈ alkylenyl);
Phenyl-O-(C₁-C₈ alkylenyl);
Substituted phenyl-O-(C₁-C₈ alkylenyl);
Phenyl-S-(C₁-C₈ alkylenyl);
Substituted phenyl-S-(C₁-C₈ alkylenyl);
Phenyl-S(O)-(C₁-C₈ alkylenyl);
Substituted phenyl-S(O)-(C₁-C₈ alkylenyl);
Phenyl-S(O)₂-(C₁-C₈ alkylenyl); and
Substituted phenyl-S(O)₂-(C₁-C₈ alkylenyl);

Each substituted R¹ and R² group contains from 1 to 4 substituents, each independently on a carbon or nitrogen atom, independently selected from:

C₁-C₆ alkyl;
CN;

CF₃;

HO;

(C₁-C₆ alkyl)-O;

(C₁-C₆ alkyl)-S(O)₂;

H₂N;

(C₁-C₆ alkyl)-N(H);

(C₁-C₆ alkyl)₂-N;

(C₁-C₆ alkyl)-C(O)O-(C₁-C₈ alkylenyl)_m;

(C₁-C₆ alkyl)-C(O)O-(1- to 8-membered heteroalkylenyl)_m;

(C₁-C₆ alkyl)-C(O)N(H)-(C₁-C₈ alkylenyl)_m;

(C₁-C₆ alkyl)-C(O)N(H)-(1- to 8-membered heteroalkylenyl)_m;

H₂NS(O)₂-(C₁-C₈ alkylenyl);

(C₁-C₆ alkyl)-N(H)S(O)₂-(C₁-C₈ alkylenyl)_m;

(C₁-C₆ alkyl)₂-NS(O)₂-(C₁-C₈ alkylenyl)_m;

3- to 6-membered heterocycloalkyl-(G)_m;

Substituted 3- to 6-membered heterocycloalkyl-(G)_m;

5- or 6-membered heteroaryl-(G)_m;

Substituted 5- or 6-membered heteroaryl-(G)_m;

(C₁-C₆ alkyl)-S(O)₂-N(H)-C(O)-(C₁-C₈ alkylenyl)_m; and

(C₁-C₆ alkyl)-C(O)-N(H)-S(O)₂-(C₁-C₈ alkylenyl)_m;

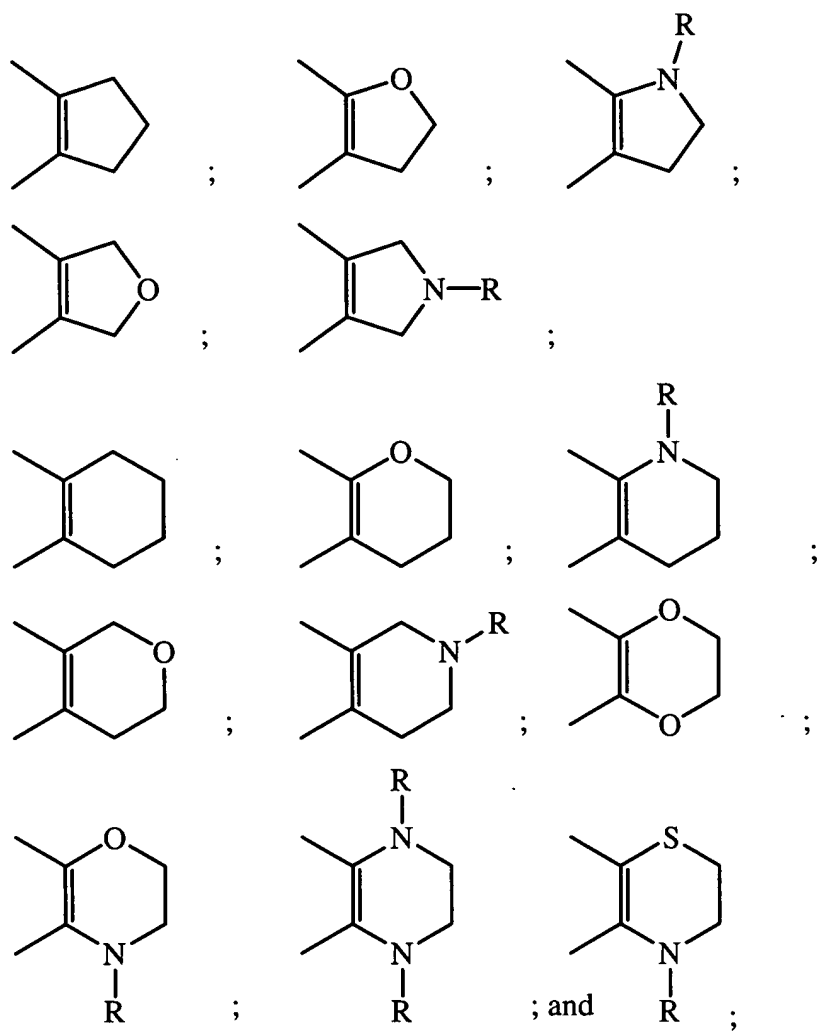
wherein each substituent on a carbon atom may further be independently selected from:

Halo; and

HO₂C;

wherein 2 substituents may be taken together with a carbon atom to which they are both bonded to form the group C=O;

wherein two adjacent, substantially sp² carbon atoms may be taken together with a diradical substituent to form a cyclic diradical selected from:



R is H or C₁-C₆ alkyl;

G is CH₂; O, S, S(O); or S(O)₂;

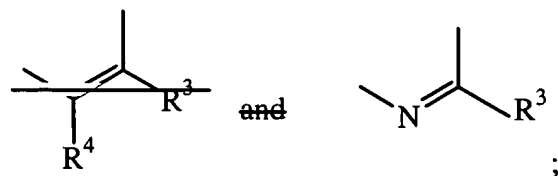
m is an integer of 0 or 1;

Y¹ is CH₂, C(O), or S(O)₂;

~~Y² is C(O);~~

~~Y³ is N(R⁴); or~~

Y² and Y³ may be taken together to form a diradical group selected from:



R³ is independently selected from the groups:

H;
CH₃;
CH₃O;
CH=CH₂;
HO;
CF₃;
CN;
F; and
Cl;

R⁴ is independently selected from the groups:

H;
CH₃;
CH₃O;
HO;
CF₃; and
CN; and

wherein R⁴ is bonded to a carbon atom, R⁴ may further independently be
halo or CO₂H;

Q is selected from:

OC(O);
CH(R⁵)C(O);
OC(NR⁵);
CH(R⁵)C(NR⁵);
N(R⁵)C(O);
N(R⁵)C(S);
N(R⁵)C(NR⁵);
CH₂N(R⁵);
SC(O);
CH(R⁵)C(S);
SC(NR⁵);

trans-(H)C=C(H);

cis-(H)C=C(H);

C≡C;

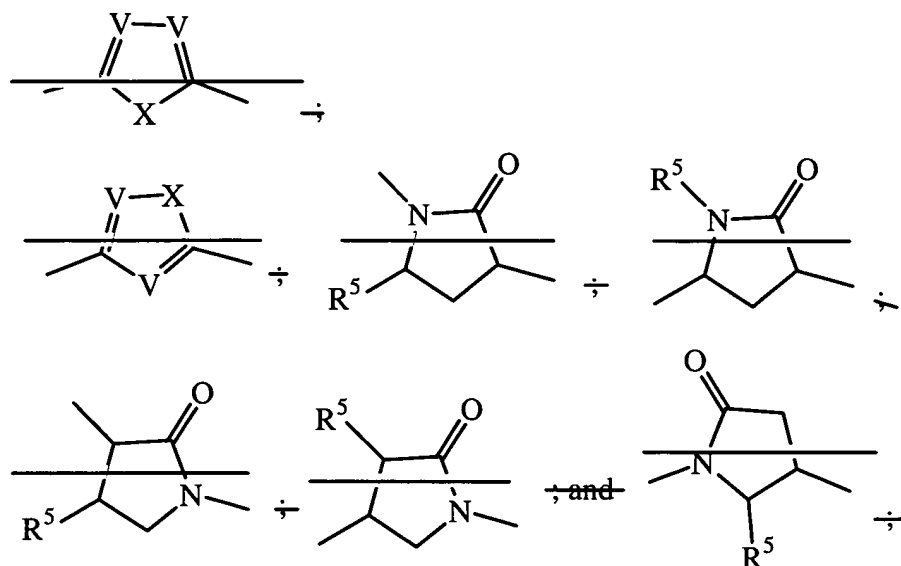
CH₂C≡C;

C≡CCH₂;

CF₂C≡C; and

C≡CCF₂; and

C≡CC(O);



Each R⁵ is independently selected from: H, C₁-C₆ alkyl, C₃-C₆ cycloalkyl; 3- to 6-membered heterocycloalkyl; phenyl; benzyl; and 5- or 6-membered heteroaryl;

X is O, S, N(H), or N(C₁-C₆ alkyl);

Each V is independently C(H) or N;

wherein "pyrido-N-oxide" means an N-oxide of a 6-membered heteroaryl which contains a pyridinyl radical or an N-oxide of a substituted 6-membered heteroaryl which contains a substituted pyridinyl radical;

wherein each C₈-C₁₀ bicycloalkyl is a bicyclic carbocyclic ring that contains 8-, 9-, or 10-member carbon atoms which are 5,5-fused, 6,5-fused, or 6,6-fused bicyclic rings, respectively, and wherein the ring is saturated or optionally contains one carbon-carbon double bond;

wherein each 8- to 10-membered heterobicycloalkyl is a bicyclic ring that contains carbon atoms and from 1 to 4 heteroatoms independently selected from 2 O, 1 S, 1 S(O), 1 S(O)₂, 1 N, 4 N(H), and 4 N(C₁-C₆ alkyl), and wherein when two O atoms or one O atom and one S atom are present, the two O atoms or one O atom and one S atom are not bonded to each other, and wherein the ring is saturated or optionally contains one carbon-carbon or carbon-nitrogen double bond, and wherein the heterobicycloalkyl is a 5,5-fused, 6,5-fused, or 6,6-fused bicyclic ring, respectively,

wherein each heterocycloalkyl is a ring that contains carbon atoms and from 1 to 4 heteroatoms independently selected from 2 O, 1 S, 1 S(O), 1 S(O)₂, 1 N, 4 N(H), and 4 N(C₁-C₆ alkyl), and wherein when two O atoms or one O atom and one S atom are present, the two O atoms or one O atom and one S atom are not bonded to each other, and wherein the ring is saturated or optionally contains one carbon-carbon or carbon-nitrogen double bond;

wherein each 5-membered heteroaryl contains carbon atoms and from 1 to 4 heteroatoms independently selected from 1 O, 1 S, 1 N(H), 1 N(C₁-C₆ alkyl), and 4 N, and each 6-membered heteroaryl contains carbon atoms and 1 or 2 heteroatoms independently selected from N, N(H), and N(C₁-C₆ alkyl), and 5- and 6-membered heteroaryl are monocyclic rings;

wherein each heterobiaryl contains carbon atoms and from 1 to 4 heteroatoms independently selected from 1 O, 1 S, 1 N(H), 1 N(C₁-C₆ alkyl), and 4 N, and where the 8-, 9-, and 10-membered heterobiaryl are 5,5-fused, 6,5-fused, and 6,6-fused bicyclic rings, respectively, and wherein at least 1 of the 2 fused rings of a bicyclic ring is aromatic, and wherein when the O and S atoms both are present, the O and S atoms are not bonded to each other;

wherein with any (C₁-C₆ alkyl)₂-N group, the C₁-C₆ alkyl groups may be optionally taken together with the nitrogen atom to which they are attached to form a 5- or 6-membered heterocycloalkyl; and

wherein each group and each substituent recited above is independently selected.

Claim 2 (currently amended). The compound according to Claim 1, or a pharmaceutically acceptable salt thereof, wherein Y^1 is $CH_2-C(=O)$, or $S(O)_2$ and Q is $N(R^5)C(O)$ or $C\equiv C$, wherein R^5 is as defined above.

Claims 3 and 4 (cancelled).

Claim 5 (currently amended). The compound ~~according to any one of Claims 1 to 4 as in Claim 1 or 2,~~ or a pharmaceutically acceptable salt thereof, wherein R^1 is independently selected from:

- Phenyl-(C_1 - C_8 alkylenyl);
- Substituted phenyl-(C_1 - C_8 alkylenyl);
- 5- or 6-membered heteroaryl-(C_1 - C_8 alkylenyl);
- Substituted 5- or 6-membered heteroaryl-(C_1 - C_8 alkylenyl);
- 8- to 10-membered heterobiaryl-(C_1 - C_8 alkylenyl); and
- Substituted 8- to 10-membered heterobiaryl-(C_1 - C_8 alkylenyl); and

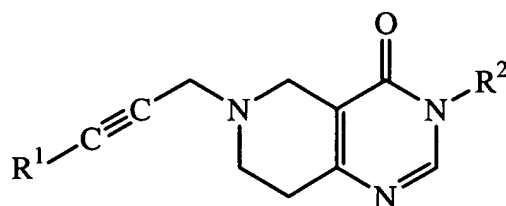
R^2 is independently selected from:

- Phenyl-(C_1 - C_8 alkylenyl)_m;
- Substituted phenyl-(C_1 - C_8 alkylenyl)_m;
- 5- or 6-membered heteroaryl-(C_1 - C_8 alkylenyl)_m;
- Substituted 5- or 6-membered heteroaryl-(C_1 - C_8 alkylenyl)_m;
- 8- to 10-membered heterobiaryl-(C_1 - C_8 alkylenyl)_m; and
- Substituted 8- to 10-membered heterobiaryl-(C_1 - C_8 alkylenyl)_m;

wherein m is an integer of 0 or 1; and

wherein each group and each substituent is independently selected.

Claim 6 (currently amended). A compound of Formula II



II

or a pharmaceutically acceptable salt thereof, or a pyrido-N-oxide thereof
wherein:

R¹ is independently selected from:

C₅ or C₆ cycloalkyl-(C₁-C₈ alkylenyl);

Substituted C₅ or C₆ cycloalkyl-(C₁-C₈ alkylenyl);

C₈-C₁₀ bicycloalkyl-(C₁-C₈ alkylenyl);

Substituted C₈-C₁₀ bicycloalkyl-(C₁-C₈ alkylenyl);

5- or 6-membered heterocycloalkyl-(C₁-C₈ alkylenyl);

Substituted 5- or 6-membered heterocycloalkyl-(C₁-C₈ alkylenyl);

8- to 10-membered heterobicycloalkyl-(C₁-C₈ alkylenyl);

Substituted 8- to 10-membered heterobicycloalkyl-(C₁-C₈ alkylenyl);

Phenyl-(C₁-C₈ alkylenyl);

Substituted phenyl-(C₁-C₈ alkylenyl);

Naphthyl-(C₁-C₈ alkylenyl);

Substituted naphthyl-(C₁-C₈ alkylenyl);

5- or 6-membered heteroaryl-(C₁-C₈ alkylenyl);

Substituted 5- or 6-membered heteroaryl-(C₁-C₈ alkylenyl);

8- to 10-membered heterobiaryl-(C₁-C₈ alkylenyl);

Substituted 8- to 10-membered heterobiaryl-(C₁-C₈ alkylenyl);

Phenyl;

Substituted phenyl;

Naphthyl;

Substituted naphthyl;

5- or 6-membered heteroaryl;

Substituted 5- or 6-membered heteroaryl;

8- to 10-membered heterobiaryl; and

Substituted 8- to 10-membered heterobiaryl;

R² is independently selected from:

H;

C₁-C₆ alkyl;

Phenyl-(C₁-C₈ alkylenyl)_m;

Substituted phenyl-(C₁-C₈ alkylenyl)_m;

Naphthyl-(C₁-C₈ alkylenyl)_m;

Substituted naphthyl-(C₁-C₈ alkylenyl)_m;

5- or 6-membered heteroaryl-(C₁-C₈ alkylenyl)_m;

Substituted 5- or 6-membered heteroaryl-(C₁-C₈ alkylenyl)_m;

8- to 10-membered heterobiaryl-(C₁-C₈ alkylenyl)_m;

Substituted 8- to 10-membered heterobiaryl-(C₁-C₈ alkylenyl)_m;

Phenyl-O-(C₁-C₈ alkylenyl);

Substituted phenyl-O-(C₁-C₈ alkylenyl);

Phenyl-S-(C₁-C₈ alkylenyl);

Substituted phenyl-S-(C₁-C₈ alkylenyl);

Phenyl-S(O)-(C₁-C₈ alkylenyl);

Substituted phenyl-S(O)-(C₁-C₈ alkylenyl);

Phenyl-S(O)₂-(C₁-C₈ alkylenyl); and

Substituted phenyl-S(O)₂-(C₁-C₈ alkylenyl);

Each substituted R¹ and R² group contains from 1 to 4 substituents, each independently on a carbon or nitrogen atom, independently selected from:

C₁-C₆ alkyl;

CN;

CF₃;

HO;

(C₁-C₆ alkyl)-O;

(C₁-C₆ alkyl)-S(O)₂;

H₂N;

(C₁-C₆ alkyl)-N(H);

(C₁-C₆ alkyl)₂-N;

(C₁-C₆ alkyl)-C(O)O-(C₁-C₈ alkylene)_m;

(C₁-C₆ alkyl)-C(O)O-(1- to 8-membered heteroalkylene)_m;

(C₁-C₆ alkyl)-C(O)N(H)-(C₁-C₈ alkylene)_m;

(C₁-C₆ alkyl)-C(O)N(H)-(1- to 8-membered heteroalkylene)_m;

H₂NS(O)₂-(C₁-C₈ alkylene);

(C₁-C₆ alkyl)-N(H)S(O)₂-(C₁-C₈ alkylene)_m;

(C₁-C₆ alkyl)₂-NS(O)₂-(C₁-C₈ alkylene)_m;

3- to 6-membered heterocycloalkyl-(G)_m;

Substituted 3- to 6-membered heterocycloalkyl-(G)_m;

5- or 6-membered heteroaryl-(G)_m;

Substituted 5- or 6-membered heteroaryl-(G)_m;

(C₁-C₆ alkyl)-S(O)₂-N(H)-C(O)-(C₁-C₈ alkylene)_m;

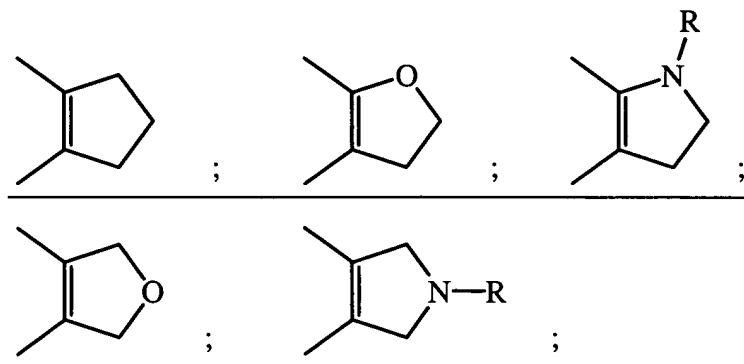
(C₁-C₆ alkyl)-C(O)-N(H)-S(O)₂-(C₁-C₈ alkylene)_m;

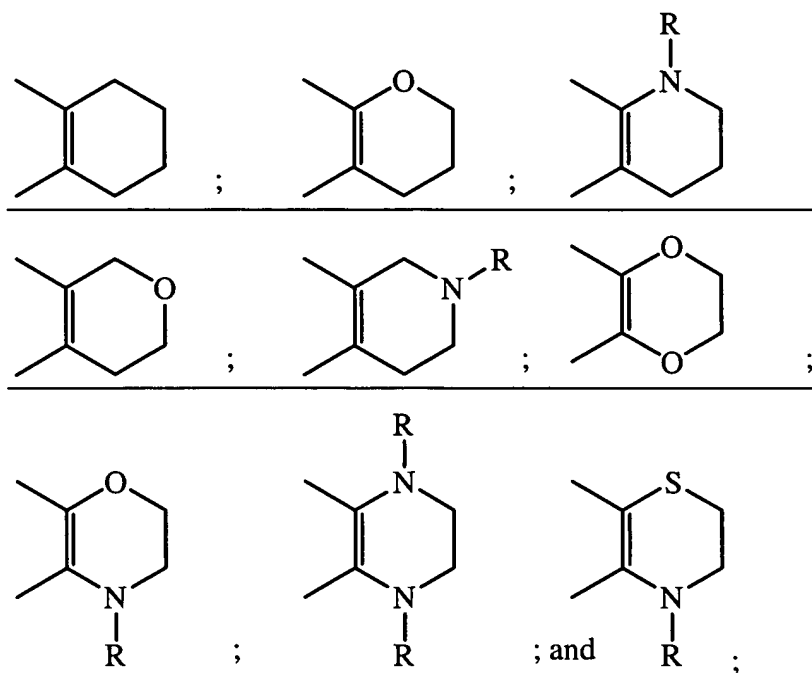
Halo; and

HO₂C;

wherein 2 substituents may be taken together with a carbon atom to which they are both bonded to form the group C=O;

wherein two adjacent, substantially sp² carbon atoms may be taken together with a diradical substituent to form a cyclic diradical selected from:





R is H or C₁-C₆ alkyl;

G is CH₂; O, S, S(O); or S(O)₂;

m is an integer of 0 or 1;

wherein each C₈-C₁₀ bicycloalkyl is a bicyclic carbocyclic ring that contains 8-, 9-, or 10-member carbon atoms which are 5,5-fused, 6,5-fused, or 6,6-fused bicyclic rings, respectively, and wherein the ring is saturated or optionally contains one carbon-carbon double bond;

wherein each 8- to 10-membered heterobicycloalkyl is a bicyclic ring that contains carbon atoms and from 1 to 4 heteroatoms independently selected from 2 O, 1 S, 1 S(O), 1 S(O)₂, 1 N, 4 N(H), and 4 N(C₁-C₆ alkyl), and wherein when two O atoms or one O atom and one S atom are present, the two O atoms or one O atom and one S atom are not bonded to each other, and wherein the ring is saturated or optionally contains one carbon-carbon or carbon-nitrogen double bond, and wherein the heterobicycloalkyl is a 5,5-fused, 6,5-fused, or 6,6-fused bicyclic ring, respectively,

wherein each heterocycloalkyl is a ring that contains carbon atoms and from 1 to 4 heteroatoms independently selected from 2 O, 1 S, 1 S(O), 1 S(O)₂, 1 N, 4 N(H), and 4 N(C₁-C₆ alkyl), and wherein when two O atoms or one O

atom and one S atom are present, the two O atoms or one O atom and one S atom are not bonded to each other, and wherein the ring is saturated or optionally contains one carbon-carbon or carbon-nitrogen double bond;
wherein each 5-membered heteroaryl contains carbon atoms and from 1 to 4 heteroatoms independently selected from 1 O, 1 S, 1 N(H), 1 N(C₁-C₆ alkyl), and 4 N, and each 6-membered heteroaryl contains carbon atoms and 1 or 2 heteroatoms independently selected from N, N(H), and N(C₁-C₆ alkyl), and 5- and 6-membered heteroaryl are monocyclic rings;
wherein each heterobiaryl contains carbon atoms and from 1 to 4 heteroatoms independently selected from 1 O, 1 S, 1 N(H), 1 N(C₁-C₆ alkyl), and 4 N, and where the 8-, 9-, and 10-membered heterobiaryl are 5,5-fused, 6,5-fused, and 6,6-fused bicyclic rings, respectively, and wherein at least 1 of the 2 fused rings of a bicyclic ring is aromatic, and wherein when the O and S atoms both are present, the O and S atoms are not bonded to each other;
wherein with any (C₁-C₆ alkyl)₂-N group, the C₁-C₆ alkyl groups may be optionally taken together with the nitrogen atom to which they are attached to form a 5- or 6-membered heterocycloalkyl;
wherein "pyrido-N-oxide" means an N-oxide of a 6-membered heteroaryl which contains a pyridinyl radical or an N-oxide of a substituted 6-membered heteroaryl which contains a substituted pyridinyl radical; and
wherein each group and each substituent recited above is independently selected.

Claim 7 (original). The compound of Formula II according to Claim 6, selected from:

3-Benzyl-6-(3-phenyl-prop-2-ynyl)-5,6,7,8-tetrahydro-3H-pyrido[4,3-d]pyrimidin-4-one;

6-(3-Phenyl-prop-2-ynyl)-3-pyridin-4-ylmethyl-5,6,7,8-tetrahydro-3H-pyrido[4,3-d]pyrimidin-4-one;

4-[4-Oxo-6-(3-phenyl-prop-2-ynyl)-5,6,7,8-tetrahydro-4H-pyrido[4,3-d]pyrimidin-3-ylmethyl]-benzoic acid;

4-[4-Oxo-6-(3-phenyl-prop-2-ynyl)-5,6,7,8-tetrahydro-4H-pyrido[4,3-d]pyrimidin-3-ylmethyl]-benzonitrile;

6-(3-Phenyl-prop-2-ynyl)-3-[4-(1H-tetrazol-5-yl)-benzyl]-5,6,7,8-tetrahydro-3H-pyrido[4,3-d]pyrimidin-4-one;

3-Biphenyl-4-ylmethyl-6-(3-phenyl-prop-2-ynyl)-5,6,7,8-tetrahydro-3H-pyrido[4,3-d]pyrimidin-4-one;

6-(3-Phenyl-prop-2-ynyl)-3-(4-pyridin-4-yl-benzyl)-5,6,7,8-tetrahydro-3H-pyrido[4,3-d]pyrimidin-4-one;

3-(4-Furan-3-yl-benzyl)-6-(3-phenyl-prop-2-ynyl)-5,6,7,8-tetrahydro-3H-pyrido[4,3-d]pyrimidin-4-one;

3-(4-Furan-2-yl-benzyl)-6-(3-phenyl-prop-2-ynyl)-5,6,7,8-tetrahydro-3H-pyrido[4,3-d]pyrimidin-4-one;

6-(3-Phenyl-prop-2-ynyl)-3-(4-thiophen-3-yl-benzyl)-5,6,7,8-tetrahydro-3H-pyrido[4,3-d]pyrimidin-4-one;

6-(3-Phenyl-prop-2-ynyl)-3-(4-thiophen-2-yl-benzyl)-5,6,7,8-tetrahydro-3H-pyrido[4,3-d]pyrimidin-4-one;

6-(3-Phenyl-prop-2-ynyl)-3-(4-thiophen-3-yl-benzyl)-5,6,7,8-tetrahydro-3H-pyrido[4,3-d]pyrimidin-4-one;

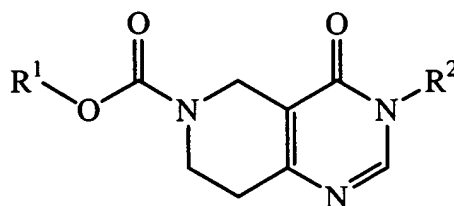
6-(3-Phenyl-prop-2-ynyl)-3-[4-(1H-pyrrol-2-yl)-benzyl]-5,6,7,8-tetrahydro-3H-pyrido[4,3-d]pyrimidin-4-one;

3-[4-(1-Methyl-1H-pyrrol-3-yl)-benzyl]-6-(3-phenyl-prop-2-ynyl)-5,6,7,8-tetrahydro-3H-pyrido[4,3-d]pyrimidin-4-one; and

3-[4-(1-Methyl-1H-pyrrol-2-yl)-benzyl]-6-(3-phenyl-prop-2-ynyl)-5,6,7,8-tetrahydro-3H-pyrido[4,3-d]pyrimidin-4-one; or

a pharmaceutically acceptable salt thereof.

Claim 8 (currently amended). A compound of Formula III



III

or a pharmaceutically acceptable salt thereof, or a pyrido-N-oxide thereof
wherein:

R¹ is independently selected from:

C₅ or C₆ cycloalkyl-(C₁-C₈ alkylenyl);

Substituted C₅ or C₆ cycloalkyl-(C₁-C₈ alkylenyl);

C₈-C₁₀ bicycloalkyl-(C₁-C₈ alkylenyl);

Substituted C₈-C₁₀ bicycloalkyl-(C₁-C₈ alkylenyl);

5- or 6-membered heterocycloalkyl-(C₁-C₈ alkylenyl);

Substituted 5- or 6-membered heterocycloalkyl-(C₁-C₈ alkylenyl);

8- to 10-membered heterobicycloalkyl-(C₁-C₈ alkylenyl);

Substituted 8- to 10-membered heterobicycloalkyl-(C₁-C₈ alkylenyl);

Phenyl-(C₁-C₈ alkylenyl);

Substituted phenyl-(C₁-C₈ alkylenyl);

Naphthyl-(C₁-C₈ alkylenyl);

Substituted naphthyl-(C₁-C₈ alkylenyl);

5- or 6-membered heteroaryl-(C₁-C₈ alkylenyl);

Substituted 5- or 6-membered heteroaryl-(C₁-C₈ alkylenyl);

8- to 10-membered heterobiaryl-(C₁-C₈ alkylenyl);

Substituted 8- to 10-membered heterobiaryl-(C₁-C₈ alkylenyl);

Phenyl;

Substituted phenyl;

Naphthyl;

Substituted naphthyl;

5- or 6-membered heteroaryl;

Substituted 5- or 6-membered heteroaryl;

8- to 10-membered heterobiaryl; and

Substituted 8- to 10-membered heterobiaryl;

R² is independently selected from:

H;

C₁-C₆ alkyl;

Phenyl-(C₁-C₈ alkylene)_m;

Substituted phenyl-(C₁-C₈ alkylene)_m;

Naphthyl-(C₁-C₈ alkylene)_m;

Substituted naphthyl-(C₁-C₈ alkylene)_m;

5- or 6-membered heteroaryl-(C₁-C₈ alkylene)_m;

Substituted 5- or 6-membered heteroaryl-(C₁-C₈ alkylene)_m;

8- to 10-membered heterobiaryl-(C₁-C₈ alkylene)_m;

Substituted 8- to 10-membered heterobiaryl-(C₁-C₈ alkylene)_m;

Phenyl-O-(C₁-C₈ alkylene);

Substituted phenyl-O-(C₁-C₈ alkylene);

Phenyl-S-(C₁-C₈ alkylene);

Substituted phenyl-S-(C₁-C₈ alkylene);

Phenyl-S(O)-(C₁-C₈ alkylene);

Substituted phenyl-S(O)-(C₁-C₈ alkylene);

Phenyl-S(O)₂-(C₁-C₈ alkylene); and

Substituted phenyl-S(O)₂-(C₁-C₈ alkylene)

Each substituted R¹ and R² group contains from 1 to 4 substituents, each independently on a carbon or nitrogen atom, independently selected from:

C₁-C₆ alkyl;

CN;

CF₃;

HO;

(C₁-C₆ alkyl)-O;

(C₁-C₆ alkyl)-S(O)₂;

H₂N;

(C₁-C₆ alkyl)-N(H);

(C₁-C₆ alkyl)₂-N;

(C₁-C₆ alkyl)-C(O)O-(C₁-C₈ alkylene)_m;

(C₁-C₆ alkyl)-C(O)O-(1- to 8-membered heteroalkylene)_m;

(C₁-C₆ alkyl)-C(O)N(H)-(C₁-C₈ alkylene)_m;

(C₁-C₆ alkyl)-C(O)N(H)-(1- to 8-membered heteroalkylene)_m;

H₂NS(O)₂-(C₁-C₈ alkylene);

(C₁-C₆ alkyl)-N(H)S(O)₂-(C₁-C₈ alkylene)_m;

(C₁-C₆ alkyl)₂-NS(O)₂-(C₁-C₈ alkylene)_m;

3- to 6-membered heterocycloalkyl-(G)_m;

Substituted 3- to 6-membered heterocycloalkyl-(G)_m;

5- or 6-membered heteroaryl-(G)_m;

Substituted 5- or 6-membered heteroaryl-(G)_m;

(C₁-C₆ alkyl)-S(O)₂-N(H)-C(O)-(C₁-C₈ alkylene)_m;

(C₁-C₆ alkyl)-C(O)-N(H)-S(O)₂-(C₁-C₈ alkylene)_m;

Halo; and

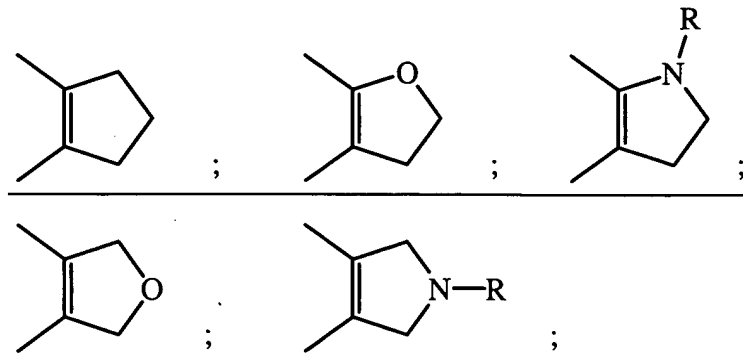
HO₂C;

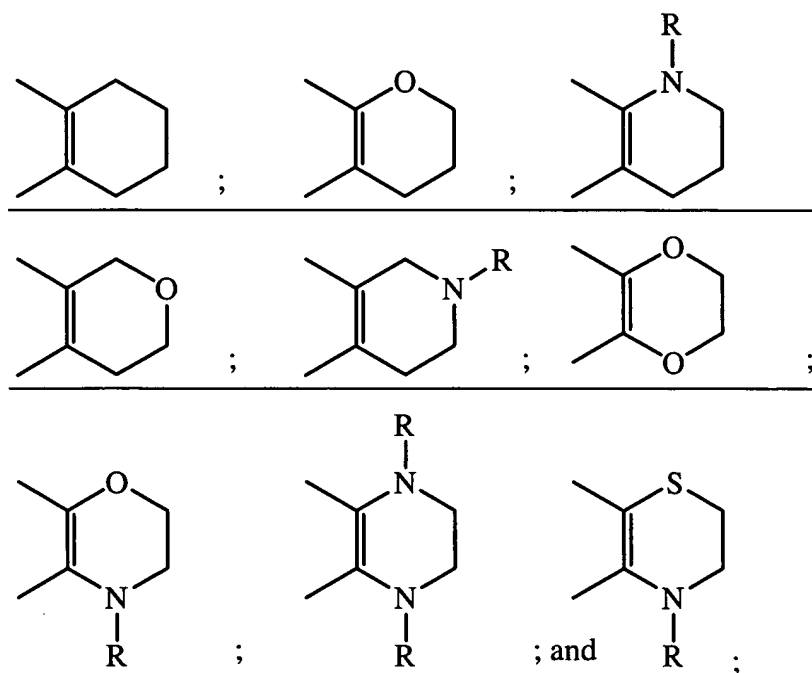
wherein 2 substituents may be taken together with a carbon atom to which they

are both bonded to form the group C=O;

wherein two adjacent, substantially sp² carbon atoms may be taken together with

a diradical substituent to form a cyclic diradical selected from:





R is H or C₁-C₆ alkyl;

G is CH₂; O, S, S(O); or S(O)₂;

m is an integer of 0 or 1;

wherein each C₈-C₁₀ bicycloalkyl is a bicyclic carbocyclic ring that contains 8-, 9-, or 10-member carbon atoms which are 5,5-fused, 6,5-fused, or 6,6-fused bicyclic rings, respectively, and wherein the ring is saturated or optionally contains one carbon-carbon double bond;

wherein each 8- to 10-membered heterobicycloalkyl is a bicyclic ring that contains carbon atoms and from 1 to 4 heteroatoms independently selected from 2 O, 1 S, 1 S(O), 1 S(O)₂, 1 N, 4 N(H), and 4 N(C₁-C₆ alkyl), and wherein when two O atoms or one O atom and one S atom are present, the two O atoms or one O atom and one S atom are not bonded to each other, and wherein the ring is saturated or optionally contains one carbon-carbon or carbon-nitrogen double bond, and wherein the heterobicycloalkyl is a 5,5-fused, 6,5-fused, or 6,6-fused bicyclic ring, respectively,

wherein each heterocycloalkyl is a ring that contains carbon atoms and from 1 to 4 heteroatoms independently selected from 2 O, 1 S, 1 S(O), 1 S(O)₂, 1 N, 4 N(H), and 4 N(C₁-C₆ alkyl), and wherein when two O atoms or one O

atom and one S atom are present, the two O atoms or one O atom and one S atom are not bonded to each other, and wherein the ring is saturated or optionally contains one carbon-carbon or carbon-nitrogen double bond;
wherein each 5-membered heteroaryl contains carbon atoms and from 1 to 4 heteroatoms independently selected from 1 O, 1 S, 1 N(H), 1 N(C₁-C₆ alkyl), and 4 N, and each 6-membered heteroaryl contains carbon atoms and 1 or 2 heteroatoms independently selected from N, N(H), and N(C₁-C₆ alkyl), and 5- and 6-membered heteroaryl are monocyclic rings;
wherein each heterobiaryl contains carbon atoms and from 1 to 4 heteroatoms independently selected from 1 O, 1 S, 1 N(H), 1 N(C₁-C₆ alkyl), and 4 N, and where the 8-, 9-, and 10-membered heterobiaryl are 5,5-fused, 6,5-fused, and 6,6-fused bicyclic rings, respectively, and wherein at least 1 of the 2 fused rings of a bicyclic ring is aromatic, and wherein when the O and S atoms both are present, the O and S atoms are not bonded to each other;
wherein with any (C₁-C₆ alkyl)₂-N group, the C₁-C₆ alkyl groups may be optionally taken together with the nitrogen atom to which they are attached to form a 5- or 6-membered heterocycloalkyl;
wherein "pyrido-N-oxide" means an N-oxide of a 6-membered heteroaryl which contains a pyridinyl radical or an N-oxide of a substituted 6-membered heteroaryl which contains a substituted pyridinyl radical; and
wherein each group and each substituent recited above is independently selected.

Claim 9 (original). The compound of Formula III according to Claim 8, selected from:

3-Benzyl-4-oxo-3,5,7,8-tetrahydro-4H-pyrido[4,3-d]pyrimidine-6-carboxylic acid benzyl ester;

3-Benzyl-4-oxo-3,5,7,8-tetrahydro-4H-pyrido[4,3-d]pyrimidine-6-carboxylic acid pyridin-4-ylmethyl ester;

3-Benzyl-4-oxo-3,5,7,8-tetrahydro-4H-pyrido[4,3-d]pyrimidine-6-carboxylic acid 2-methoxy-pyridin-4-ylmethyl ester;

3-Benzyl-4-oxo-3,5,7,8-tetrahydro-4H-pyrido[4,3-d]pyrimidine-6-carboxylic acid 3-methoxy-benzyl ester;

3-Benzyl-4-oxo-3,5,7,8-tetrahydro-4H-pyrido[4,3-d]pyrimidine-6-carboxylic acid 4-methoxy-benzyl ester;

3-Benzyl-4-oxo-3,5,7,8-tetrahydro-4H-pyrido[4,3-d]pyrimidine-6-carboxylic acid 4-fluoro-benzyl ester;

3-Benzyl-4-oxo-3,5,7,8-tetrahydro-4H-pyrido[4,3-d]pyrimidine-6-carboxylic acid 4-chloro-benzyl ester;

3-Benzyl-4-oxo-3,5,7,8-tetrahydro-4H-pyrido[4,3-d]pyrimidine-6-carboxylic acid 4-bromo-benzyl ester;

3-Benzyl-4-oxo-3,5,7,8-tetrahydro-4H-pyrido[4,3-d]pyrimidine-6-carboxylic acid 4-iodo-benzyl ester;

3-Benzyl-4-oxo-3,5,7,8-tetrahydro-4H-pyrido[4,3-d]pyrimidine-6-carboxylic acid 4-dimethylamino-benzyl ester; and

3-Benzyl-4-oxo-3,5,7,8-tetrahydro-4H-pyrido[4,3-d]pyrimidine-6-carboxylic acid 4-methylsulfanyl-benzyl ester; or

a pharmaceutically acceptable salt thereof.

Claim 10 (original). A pharmaceutical composition, comprising a compound according to Claim 1, or a pharmaceutically acceptable salt thereof, admixed with a pharmaceutically acceptable carrier, excipient, or diluent.

Claim 11 (currently amended). The pharmaceutical composition according to Claim 10, comprising a compound ~~according to~~ as in Claim 7 or 9, or a pharmaceutically acceptable salt thereof, admixed with a pharmaceutically acceptable carrier, excipient, or diluent.

Claim 12 (original). A method for treating arthritis, comprising administering to a patient suffering from an arthritis disease a nontoxic antiarthritic effective amount of a compound according to Claim 1, or a pharmaceutically acceptable salt thereof.

Claim 13 (original). The method according to Claim 12, wherein the arthritis is osteoarthritis or rheumatoid arthritis.

Claim 14 (currently amended). The method according to Claim 13, wherein the compound according to Claim 1 is a compound ~~according to~~ as in Claim 7 or 9.

Claim 15 (new). The compound according to Claim 1, wherein Q is $\text{CH}(\text{R}^5)\text{C}(\text{O})$.

Claim 16 (new). The compound according to Claim 1, wherein R^1 is substituted phenyl-(C_1 - C_8 alkylene).